REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office Action, and the following remarks are presented for the Examiner's consideration.

Claims 1-3, 9, 10 and 12-15 were rejected under 35 U.S.C. 103(a) as being unpatentable over the cited publication entitled "High-Frequency, Long-Wavelength Resonant-Cavity-Enhanced InGaAs MSM Photodectectors" (hereinafter "Strittmatter") in view of U.S. Patent No. 5,945,720 to Itatani. For the following reasons, the rejection is respectfully traversed.

Claim 1 is not rendered obvious by the teachings of Strittmatter in view of Itatani. Specifically, Strittmatter does not teach or suggest:

- electrodes network being composed of parallel conducting strips at a uniform spacing at a period less than the wavelength of incident light, the electrodes network forming a second mirror for the resonant cavity, and
- the optical characteristics of this second mirror being determined by the geometric dimensions of said conducting strips,

as required by claim 1.

These claimed features of the present application results in electrodes being placed closely to each other without masking the light. In addition, the electrodes play a fundamental role in controlling the reflectivity of the second mirror (see page 8, line 29 to page 9,line 3 of the specification). Thus, the shortness of the paths followed by the photo carriers to be collected by the electrodes assures that this device has an extremely fast intrinsic behavior (response time less than one picosecond) while resonant coupling with incident light assures a high external quantum efficiency (a gain of about a factor of 10) (see page 4, lines 6-13 of the specification). In contrast to prior art structures, the claimed structure results in no compromise between efficiency and speed (see page 1, lines 18-19 of the specification).

Applicants generally agree with the Examiner that Itatani teach an increase of the operating speed of the device by reducing the space between two consecutive electrodes. This prior art effect is acknowledged in the background of the invention on page 1, lines 13-17 of the specification of the present application. However, bringing the electrodes closer together leads to the intrinsic disadvantage of masking light (see page 2, lines 17-21 of the specification), which

decreases the amount of absorbed incident light and decreases quantum efficiency. And neither this disadvantage, not the above mentioned compromise is recognized by Itantani or Strittmatter.

Accordingly, one of ordinary skill in the art viewing the teachings of Strittmatter and Itatani would not find any reason to combine them in a way that results in the presently claimed invention. To the contrary, one of ordinary skill in the art considering applying the teachings of Itanani to the teachings of Strittmatter would be faced with the problem solved by the presently claimed invention: how to suppress the compromise between speed and efficiency. Therefore, claim 1 is not rendered obvious by the combination of the teachings of Strittmatter and Itanani. Thus, claim 1 and its dependent claims 2, 3, 9, 10 and 12-15 are patentable over the prior art of record.

Claims 4-6 were rejected under 35 U.S.C. 103(a) over Strittmatter in view of Itatani and U.S. Patent No. 5,663,639 to Brown. Brown does not teach or suggest the limitations of which Strittmatter and Itatani are deficient, as described above with regard to claim 1. Therefore, since claims 4-6 depend from claim 1, they are patentable for the same reasons.

In consideration of the foregoing analysis, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 37392.

Respectfully submitted,
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August 1, 2007